PlasticsEurope
Association of Plastics Manufacturers

PlasticsEurope Contribution to the Public Consultation on State Aid: EU-ETS Indirect Cost Compensation for plastics is vital

PlasticsEurope urges the Commission to consider in its review of the EU ETS State Aid Guidelines the qualitative assessment of NACE 20.16 Plastics in primary forms for eligibility for indirect cost compensation under phase IV of the EU ETS. The sector is at risk of carbon leakage due to indirect emissions. .

Currently a PRODCOM subset of NACE 20.16 is eligible in phase III and as the carbon leakage risk has not decreased it is our maintained sector viewpoint that plastics need to be eligible also during 2021-2030 and this at the entire NACE 20.16 level[1]. This is also stated by the report of ADE and Compass Lexicon (*Combined retrospective evaluation and prospective impact assessment support study on Emission Trading System (ETS) State Aid Guidelines*) in its RAG rating on page 34. The carbon leakage risk is in fact increasing because the carbon price is increasing and because global competition is increasing as well (the Trade Intensity consistently increases over time).

The Commission states in its explanatory note (page 3):

> "The Commission may decide to include additional sectors, in light of the feedback and evidence received in the public consultation, based on qualitative considerations provided the sectors concerned have at least an indirect carbon leakage indicator of 0.2 and that their carbon leakage risk as evaluated by the consultant in the study is at least medium."

Therefore, PlasticsEurope provides qualitative and quantitative arguments to underpin the need for eligibility of the sector NACE 20.16:

1) PLASTICS HAVE A HIGH TRADE INTENSITY

According to the official data, the sector NACE 20.16 has had a trade intensity of 36% in the years 2013-2015. The **high trade intensity in combination with low cost pass through (see chapter 4)** results in a carbon leakage risk to the European plastics industry. Therefore, the sector's eligibility for indirect cost compensation is key to preserve the competitiveness and contribution of the sector to the future challenge of carbon neutrality in 2050 (see chapter 2).

2) PLASTICS HAVE A HIGH INDIRECT EMISSION INTENSITY

The typical process setup for plastics manufacturing is today already fairly electricity driven. Well above 50% of the primary energy consumption in a polymerization plant relates to electricity, being electricity consumption in engines, motors and drives, and notably for the extrusion step to turn plastics powder into pellets, or for cooling reactors or for centrifuging.

The chemical industry is more exposed than appears from the Carbon Leakage Assessment data. This is especially true for NACE 20.16.

The highest uncertainty in the Carbon Leakage Assessments – the poorest data quality – is present in the assumed TWh electricity consumption. This is elaborated in the attached report. Only 17 Member

[1] In the former (2013-2020) period, only a partial selection of six PRODCOM codes was enlisted in June 2012 after a qualitative assessment. As stated in the 2019 stakeholder consultations, our plastics sector viewpoint is that all sectors enlisted in the direct allocation carbon leakage list should also qualify for indirect compensation.

States submitted electricity data (NACE-4) which covered ca. (only) 70% of total indirect emissions in the Carbon Leakage Assessments of 2014 and 2018 [total = all sectors].

The Carbon Leakage Assessment 2018 with an electricity consumption of 28.9 TWh for the years 2013-2015 with a score 1 x 2b of 0.247 is most likely too low. Although the score 1 x 2b is well above the threshold of 0.20, it is important to realise that the real score is higher. The best estimate for NACE 20.16 from the attached report for the years 2013-2015 is 35.7 TWh, with a score 1 x 2b of 0.305.

Please find more background in the attached report in chapter 9.

3) Prospective electrification of plastics enable Commission's Green Deal

The greenhouse-gas emission targets, the thereby **enhanced electrification of processes** and rising EUA-prices lead to the effect, that **indirect cost compensation becomes more and more crucial for competitiveness**. Hence, the electricity intensity of the plastic sector will raise as such - independently from evolving production technologies. A comprehensive, efficient, fair and transparent electricity price compensation is the basis for a carbon neutral economy, as foreseen by the Commission. https://dechema.de/dechema_media/Downloads/Positionspapiere/Technology_study_Low_carbon_energy_and_feedstock_for_the_European_chemical_industry.pdf

The plastics industry is expected to shift more from a direct cost base to an indirect cost base in comparison with current energy supplies, as a result of further electrifying our processes technologies: The next 10 years (time period of the State Aid Guidelines) are crucial for enabling the scaling of such an industrial transformation. Breakthrough technologies necessary for the plastics industry to contribute to the EU Green Deal all rely on a massive increase of electricity consumption.

In order to support the objectives of the European Green Deal, the ETS State Aid Guidelines should support EU's efforts to reduce global carbon emissions and prevent carbon leakage and relocation of industries. They should encourage key European manufacturing sectors with strategic value chains to implement electrification investments in ETS Phase IV since electrification will require significant process changes.

4) Plastics cannot pass-through indirect ETS costs

Competition in main market segments is generally strong, as commodity, polymers' characteristics are easily met by producers and customers can easily switch purchases from one supplier to another. Moreover, on the supply side, licenses for the basic process technologies are relatively easy to obtain, a factor that favors the emergence of numerous new producers particularly in the developing countries. International trade is therefore important, and has been growing at faster rates than demand. Key factor to successfully operate in commodity polymer markets is price, hence cost competitiveness. Producers that enjoy structural cost advantages such as those located in the Middle East and more recently, U.S.A. can afford to ship large and growing amounts of commodity polymers over long distances. The number of players and of producing countries in the Rest of the World is rapidly growing, and competition is becoming more intense. Already, 50.1 percent of all plastics is produced in Asia. A consequence is that market opportunities for EU producers are increasingly competitive and that imports are becoming price setters in EU markets. In the years 2013 to 2017, imports of plastics to Europe grew by an average of 7.4 percent per year, while exports increased by only 1.3 percent.

Absorbability of additional EU indirect carbon costs ('cost pass through') is inversely proportional to the sector's exposure to trade: Competitiveness of value chains and products would be affected i.e. where competitive technological pathways do not exist. Market characteristics provide no grounds for NACE 20.16 to pass on EU carbon costs to their customers.

Polymer interchangeability and large trade flows lead to a global pricing regime for commodity polymer grades. Prices are generally agreed on a monthly basis. Price volatility has traditionally been, and is, very high. Quotations changes depend on both external and business specific factors, the most important being:

- Price changes of the respective key raw materials (in turn influenced by the oil/gas and energy quotations).
- Supply and demand balances.

The global business structure of commodity polymers has dramatically changed in the last twenty years, a process that is set to continue following the emergence of Middle East and Asia; areas where the large majority of the new investments are concentrated and where demand is growing more rapidly. The relative importance of the European market is fast declining in terms of percentage of the global consumption. EU-28 net trade surplus for commodity polymers is being eroded. This decline and the exposure of Europe to imports from the Rest of World has been increasing rapidly.

Commodity polymers exhibit relatively low mechanical properties and are low cost. Their respective demand mainly consists of applications where technical properties and customer service are not critical, provided that generally agreed polymer specifications are met. For commodity polymer end-uses, the majority of suppliers offer a range of “polymer grades” whose properties can satisfy the customers' requirements. Manufacturing cost structures depend heavily on raw materials, which can represent up to 80% (or even more) of the total cash cost.

For the competitiveness of the plastics sector it is important that both, the homo- and the co-polymers are eligible. Therefore, it is necessary that the plastic sector is eligible at NACE-4 level.

5) PLASTICS CONTRIBUTE TO CLIMATE SOLUTIONS IN OTHER SECTORS

Polymers are an enabler of climate solutions in other sectors (mobility, housing…). Hence, only a competitive plastic sector is able to contribute its full support to other sectors for the overall target of carbon neutrality.

The Commission’s commitment to a carbon neutral EU in 2050 will require decision-makers, industry and consumers to work hand-in-hand towards greener living standards. The plastics industry is committed to making a major contribution to this ambitious goal in the following ways:

Efficient insulation:

In buildings, plastics provide effective insulation from cold and heat and prevent air leakages. Plastic insulation materials consume approximately 16% less energy and emit 9% less greenhouse gases than alternative materials. Across their entire life cycle, plastic insulation boards save 150 times the energy used for their manufacture.

Renewable energy:

Wind turbines' rotor blades and photovoltaic panels contain large amounts of plastics, helping to achieve the efficient production of renewable energy. In these two applications, plastics save 140 times and 340 times the emissions produced during their production respectively.

Lightweight applications:

Plastics enable lightweight packaging and vehicle weight reductions that combine to result in less CO2 emissions linked to transportation. Plastic packaging weighs only one quarter of comparable alternative packaging solutions, resulting in improved fuel economy and reduced emissions.

Reduced greenhouse gas emissions during manufacturing

> Plastic products typically require less energy to produce than alternative materials, especially in applications such as transport, building and construction, packaging and electronic devices. If plastics were to be replaced by alternative materials, the lifecycle energy consumption of such products would be increased by around 57% and greenhouse gas emissions would rise by 61%.

These are just some of the ways in which plastics reduce energy costs and consumption, as well as the emissions of greenhouse gases.

Plastics often have a superior carbon footprint to other types of materials (e.g. glass, aluminium, steel, paper/carboard, etc.), particularly in packaging or automotive applications for example. With the exception of glass, all of these material types would remain eligible according the draft, but polymers would be out, hence dis-advantaging the low-carbon solution. This is not in line with the targets of the Green Deal.

6) PLASTICS AS DOWNSTREAM BUILDING BLOCK OF THE CHEMICALS SECTOR

Europe today benefits from a highly integrated chemical industry, which is encompassing activities ranging from NACE 20.13 (e.g. chlorine production for later use in e.g. PVC), NACE 20.14 (e.g. ethylene and propylene production as prime building blocks for several plastics families), NACE 20.15 (e.g. ammonia, nitric acid and fertilizer production often also present at integrated chemical clusters), to NACE 20.16 for the manufacturing of polymers. This value chain is vital between companies but also within companies, producing products of the above-mentioned sectors.

Although our PlasticsEurope contribution in this consultation focuses on the particular NACE 20.16 argumentation, we believe it is key also for the future maintained competitiveness of such highly integrated chemicals sector that eligibility for indirect CO_2 costs in electricity applies for the full chemicals value chain. Additional costs in Europe, which are lower or in most cases zero in key areas outside Europe (Middle East, Asia, USA), put stress on the whole value chain which has a cumulative effect on the plastics' sectors (upstream costs, own costs).

7) ELECTRIFICATION: THE RELEVANCE OF ELECTRIC BOILERS AS PART OF ELECTRIFICATION

As mentioned, on the way to a carbon neutral Europe by 2050, electrification will play an important role. See for example the Dechema study [2] and the PRIMES model used by the Commission. Electrification for the polymer sector means the investment and use of electric boilers because polymer production requires steam, next to electricity. The indirect compensation is very important to support electrification. The major issue is the operational cost (OPEX): electricity must be cheap enough to be able to compete with natural gas, which is in recent years relatively cheap.

Electric boilers are one option to lower the CO_2 emissions of steam generation. At the moment most steam for industry in Europe is generated by boilers or CHPs (combined heat and power, also named cogeneration) fuelled with natural gas. But also coal and lignite fuelled boilers are used for steam generation.

It is noted that electric steam boilers are (for the time being) only economically attractive at times when electricity prices are sufficiently low. In the future – perhaps until 2040 or even later – this might happen in for example 2,000 hours out of 8,760 hours in a year, because of the intermittent supply of notably

[2] Dechema 2017: *"Low carbon energy and feedstock for the European chemical industry"*, on order of Cefic, June 2017.

wind and solar power. Thus in this transition period towards 2050 electric steam boilers are a means to balance the grid.

In a fossil-free Europe foreseen by 2050, electric boiler are no means anymore to balance the grid. The opportunity to switch back to natural gas or coal is then absent. The CO_2 emission of steam generated by electric boilers has become zero.

A second argument for the eligibility, next to the avoidance of competitive distortions, is electrification of manufacturing plants which have the allocation based on the heat benchmark. For the polymer industry this is applicable for all polymers except PVC, which has a product benchmark. The heat benchmark allocation is applicable for about 85% of the polymer industry.

When a plant changes the use of steam from gas-fired or coal-fired boilers for various purposes to steam from electric boilers, there is a direct emission reduction because the plant will then import less steam (or in some processes, export more steam).

But in the more dynamic allocation rules for phase 4, the allocation will drop after any such significant electrification. The reason is that there never will be an allocation of allowances for the production of heat produced from electricity. Therefore, the State aid is of crucial importance because the need for State aid increases with the increased electricity consumption for heat production.

In case of absence of eligibility for the ETS State aid, electrification of such heat benchmark manufacturing plants is not even not incentivised (incentive is zero), but electrification is de-incentivised (incentive is negative). Companies would pay a penalty by losing allowances instead of getting an incentive for electrification by getting more State aid. A zero and certainly a negative incentive to reduce emissions is of course in conflict with the very objective of the EU ETS Directive. This shows that the free allocation of allowances and the State aid are closely connected, these are together an integral part of the EU ETS Directive.

Electric boilers have their place in a carbon free Europe by 2050. But it cannot be expected that electric boilers are installed just before 2050, say in the years 2045-2050. This would be physically impossible. The State aid for the indirect emission will therefore be an important element to facilitate the gradual investment and the gradual use of electric boilers.

Please find more information on electric boilers and its economics in the attached report in chapter 3.